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AUTHOR Grubb, W. Norton
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ABSTRACT

Using two nationally representative and longitudinal data sets, a study was conducted to examine trends in transfer from community colleges to four-year colleges. These data sets followed the high school classes of 1972 and 1980 into postsecondary education. A comparison of the educational outcomes of the two cohorts of students revealed the following: (1) the likelihood of transferring to a four-year college without a credential declined, especially for students entering public technical institutes and private vocational schools; (2) the proportion of students completing academic associate degrees declined, and the likelihood of transferring among those with such credentials also declined (from 68.7% in the Class of 1972 to 48.9% in the Class of 1980). (3) the proportion of students earning vocational associate degrees increased, but the likelihood of those with such credentials transferring decreased from 31.7% to 23.2%; (4) those with vocational associate degrees were less than half as likely to transfer as those with academic associate degrees; (5) rates of completing certificates increased in technical institutes and remained stable in community colleges, but certificate completers were much less likely than degree completers to transfer; and (6) transfer rates were higher for males, white students, high socioeconomic status students, and those who were in the academic track rather than the general or vocational tracks during high school. Many different factors explain the decline of transfer rates, including the changing demographic backgrounds of students, declining achievement during high school, a collapse of career counseling in the high school, an increase in the numbers of "experimenters" in community colleges, the shift from academic to vocational programs within community colleges, the apparent weakening of academic associate degree programs as routes to transfer, and declining federal aid. An appendix containing student transfer data is attached. (JMC)

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W. Norton Grubb
School of Education
University of California, Berkeley

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THE DECLINE OF COMMUNITY COLLEGE TRANSFER RATES: EVIDENCE FROM NATIONAL LONGITUDINAL SURVEYS

W. Norton Grubb
School of Education
University of California, Berkeley

Abstract

This paper presents rates of transferring from community colleges to four-year colleges calculated from two nationally-representative and longitudinal data sets, following the high school classes of 1972 and 1980 into postsecondary education. The results indicate that transfer rates have declined substantially, for almost every group of students. Many different causesexplain these declines, none of which is particularly important: the weakening of academic Associate degree programs, the shift to more vocational programs, the changing backgrounds of students, weaker preparation in high school, an increase in "experimenters" who leave college after short periods of time, and declining federal aid are all responsible in part. As a result, the emphasis in many programs to enhance transfer solely on the articulation between two- and four-year colleges neglects many of the important causes of declining transfer.

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THE DECLINE OF COMMUNITY COLLEGE TRANSFER RATES: EVIDENCE FROM NATIONAL LONGITUDINAL SURVEYS

For at least a decade, concern has mounted about the transfer function of community colleges [19; 18; 24]. Scattered evidence from different states suggests both that the absolute numbers of transfer students has declined, and that the proportion of community college students successfully transferring to four-year colleges has decreased. In response, many programs to improve the articulation between two- and four-year colleges have developed, and strengthening the transfer function has become one of the principal concerns of community college leaders and policy-makers [17; 25; 5; 23; 24; 26].

Given the other purposes of community colleges — particularly their vocational and remedial functions, and their various forms of community service — and the many "nontraditional" students they serve, it isn't always clear why maintaining transfer programs at previous levels remains so important. Indeed, given the multiple purposes of community colleges and the varied goals of their students, one might *expect* a decrease in transfers. However, there are at least three substantial reasons for the continued importance of the transfer function, even after the community college has become a very different institution from what it was prior to the 1960s when it expanded so rapidly. The first is partly symbolic: A strong transfer program is confirmation of the academic purposes of community colleges, and strengthens their claims to being colleges [4]. A two-year institution could in theory have a strong liberal arts program, or an excellent core academic curriculum available to all its students, without its students wanting to transfer in great numbers. However, the ability of students to transfer to four-year colleges, and then compete as equals against students who begin in four-year colleges, is one test of the acceptability of community colleges within higher education.

Second, despite increasing numbers of "non-traditional" students, a large number of community college students still aspire to a B.A. Of those students enrolled in community colleges in fall 1986, for example, 18 percent said that they wanted to complete a B.A. degree; 48 percent wanted an associate degree, 11 percent were pursuing a certificate, 12 percent were enrolled for a course of study that might encompass several courses but less than a certificate program, and 11 percent had other, unspecified goals (presumably including avocational purposes).[1] Of course, many of these students are older than "traditional" college students; of those who enter soon after

graduating from high school, a much larger proportion intend to get a B.A. In the data used in this paper, nearly half — 47 percent — of the high school class of 1980 who enrolled in community colleges reported that they planned to obtain a B.A. or a postgraduate degree; 15 percent aspired to an academic degree of less than four years, and 19 percent to a vocational program (presumably either an associate degree or a certificate). To be sure, it may be that these aspirations exaggerate what students really plan to do, or that they reflect what students think they are expected to say, or that they describe premature and unrealistic fantasies. Community colleges attract many students who can be characterized as "experimenters", who enter a community college to try out postsecondary education without necessarily having much commitment to completion [20; 11]. Still, to the extent that community colleges respond to what students say they want to accomplish, a strong transfer programs remains important.

Finally, the claims of community colleges to be egalitarian institutions rest in part on the success of the transfer function. Some proponents of community colleges have argued that community colleges provide greater access to postsecondary education to students who would otherwise have little chance of going beyond high school, but without making any claims about completion, transfer, or subsequent attainment of the baccalaureate — what I have called the "weak" version of the egalitarian claim [12]. However, others have asserted that simple access may have little meaning; the "strong" version of the egalitarian claim has promoted the community college as an alternative route to the B.A., a "second chance" institution for those unable initially to gain access to four-year colleges. In addition, some states — notably California with its carefully delineated tri-partite structure of public higher education — have consciously expanded two-year colleges as the entry points into higher education, partly to provide access to a greater variety of students. Both this approach and the "strong" version of the egalitarian claim therefore depend on transfer and subsequent B.A. completion being substantial. To be sure, it isn't clear what a "substantial" transfer function might mean — what proportion of students transferring might be an acceptable level — but certainly evidence of declining rates of transfer would be troubling.

Despite the multiple and changing purposes of the community college, then, the transfer function remains important to its image and to a particular vision of the institution, if not necessarily to continued enrollment. However, the evidence about transfer rates has always been ridden with problems. Much of the available data is institution-specific, rather than nationally representative; much of it can follow community college students to only a few four-year institutions, and is therefore likely to under-count transfer; and many statistics are based on cross-section data rather than longitudinal data that can follow students from institution to institution. Most analyses compare the numbers of transfer students showing up in certain four-year colleges with community college enrollments, either concurrently or several years earlier [18, Tables 1 and 2; 21]. The widely-cited data from the California Postsecondary Education Commission [3]

similarly presents information about the number of students from community colleges enrolled in state universities and colleges, and information on the first-time enrollments in community colleges, inviting comparisons between the two series of figures. These data fail to capture transfers to private colleges, or to colleges outside the state, and it is impossible from such data to calculate a true transfer rate describing the probability that a student entering a community college will transfer.

The only way around these various data problems is to rely on longitudinal data — data that follow students among institutions — that is also nationally representative. In this paper I present transfer rates calculated from two longitudinal studies that follow the high school class of 1972 — the National Longitudinal Study of the Class of 1972, or NLS72 [27] — and the high school class of 1980, the High School and Beyond Study, or HS&B [14]. HS&B was designed to be as comparable to NLS72 as possible, so that these data can be used to examine trends in transfer patterns. A further advantage is that each survey collected information on postsecondary transcripts of individual students [15; 16], so that the results reported in this paper are based on transcript-reported rather than self-reported postsecondary education. Because student reports of education tend to *overstate* postsecondary enrollment for those students least likely to enroll in postsecondary education [13], transcripts provide more accurate information than that available from self-reports. In addition, the availability of transcripts allows us to follow students among all types of institutions, private as well as public, out-of-state as well as in-state, and also allows us to follow students as they move among multiple institutions.

A final problem with many analyses of transfer rates is that data limitations make it impossible to investigate potential causes of trends in transfer. In particular, it may be that the changing composition of students in two-year institutions, or shifts in their aspirations, may be responsible for any declines. Fortunately, both data sets used in this paper have a tremendous amount of information on the demographic and family backgrounds of students, and on their high school and college performance, all useful for disentangling the potential causes of trends in transfer.

Although these data are powerful, they still suffer from some shortcomings. One is that the period of time for which there are postsecondary transcripts is relatively short — four years for HS&B, and seven years for NLS72. In a period when the time to completing B.A. degrees is lengthening, four years is too short a period to describe all transfers and B.A. completion because many students are still in school at the end of four years. However, unless time patterns of transfer and completion have changed drastically, the trends in transfer and completion will be accurately reflected in results after four years. In order to maximize the information available in the NLS72 and HS&B data, I present results for three groups of students: graduates of the Class of 1980, within four years of high school graduation; graduates of the Class of 1972, again within four

years of high school graduation for comparability with the HS&B cohort; and graduates of the Class of 1972 within *seven* years of high school graduation, to see how transfer and graduation rates change when we examine longer periods of time.[2]

In addition, because these data follow a single high school cohort into postsecondary education, they include only those students who are about 18 to 22 years old, and therefore exclude the older students who have been entering community colleges in greater numbers. While it is generally thought that younger students are more interested in transfer than the more vocationally-oriented older students, this particular limitation makes it impossible to conclude anything about transfer patterns among a growing segment of the community college population.

Section I presents information on trends in overall transfer rates, comparing the classes of 1972 and 1980. In addition, because there are several possible routes to transfer, this section decomposes the overall transfer rates into different components. Section II presents more detailed information on the components of transfer rates for groups of students described by gender, race and ethnicity, family background, high school performance, and postsecondary aspirations; these simple results clarify that transfer rates have declined for all groups of students, and are not just an artifact of changes in the composition of students entering two-year institutions. Section III presents information on the rates at which transfer students complete B.A. degrees. Finally, Section IV outlines the implications of these results for programs to enhance transfer, as well as describing other possible causes of declining transfer rates.[3]

I. Trends in Transfer Rates and their Components

In these results, I initially distinguish among three types of postsecondary institutions which might send their students on to four-year colleges: (1) public community colleges, which are comprehensive two-year institutions granting degrees and certificates in both academic and vocational subjects;[4] (2) public technical institutes, including both one-year and two-year institutions specializing in vocational subjects, which might be expected to have lower transfer rates than community colleges; and (3) private vocational schools, which are generally short-term, highly specific, terminal vocational institutions and should have the lowest transfer rates of all. Subsequent results focus on community colleges, since these are the only institutions that have substantial transfers.

There are several ways in which students can transfer into four-year colleges. In many states, they can accumulate enough appropriate credits to transfer without receiving a credential from their original institution; or they can earn an academic Associate degree and then transfer,

perhaps the most obvious route. Alternatively, they can earn either a vocational Associate degree or a certificate and then transfer, though these are often thought to be less likely routes to four-year colleges. Thus it is useful to distinguish the various components of transfer. Table 1 presents the most basic results for students entering community colleges, public technical institutes, and private vocational schools.[5] Many of the patterns confirm conventional expectations: students entering technical institutes and private vocational schools are less likely to transfer without credentials than those entering community colleges; students entering community colleges are much more likely than others to earn academic Associate degrees, the conventional route to transfer, while students in technical institutes and private vocational schools earn either vocational degrees or certificates; and students completing academic Associate degrees are more likely to transfer than are those receiving vocational Associate degrees, with students earning certificates relatively unlikely to transfer.

These results confirm that almost every component of transfer decreased between the class of 1972 and the class of 1980. The likelihood of transferring without a credential declined, especially for students entering public technical institutes and private vocational schools. The proportion of students completing academic Associate degrees declined, particularly among community college students,[6] and then the likelihood of transferring among those with such credentials declined (from 68.7 percent in the Class of 1972 to 48.9 percent in the Class of 1980). In contrast, the proportion of students earning vocational Associate degrees increased, in all three types of institutions, as part of the general drift (particularly in the community college) from academic to vocational purposes. However, the likelihood of those with vocational Associate degrees transferring decreased by about a third (from 31.7 percent to 23.2 percent), and in any event those with vocational Associate degrees are less than half as likely to transfer as those with academic Associate degrees. Similarly, rates of completing certificates increased, at least in technical institutes, and were stable in community colleges; but since the proportion of certificate recipients transferring was cut in half between these two cohorts (from 13.7 percent to 6.7 percent), and since certificate recipients are so much less likely than those earning Associate degrees to transfer, the shift towards earning certificates also lowered transfer rates.

The likelihood of transferring can be more carefully decomposed into its four components. The overall probability of transfer pr(T) is the sum of the probability of transferring without a credential plus the probabilities of receiving various credentials and then transferring; more formally,

$$pr(T) = pr(T \text{ w/o cred}) + pr(\text{cert})\, pr(T \mid \text{cert}) + pr(\text{VocAA})\, pr(T \mid \text{VocAA}) + pr(\text{AcAA})\, pr(T \mid \text{AcAA})$$

TABLE 1
SUMMARY RESULTS: TRANSFERS RATES TO FOUR-YEAR COLLEGES AND B.A. COMPLETION RATES AMONG TRANSFER STUDENTS

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 years)
Students entering community colleges transferring without credentials	14.7%	18.3%	15.9%
Students in public technical institutes transferring without credentials	3.1	8.2	6.8
Students entering community colleges completing academic Associate degrees	5.7	10.4	10.4
Students entering community colleges completing vocational Associate degrees	11.4	9.6	10.4
Students entering community colleges completing certificates	2.0	2.0	2.3
Students entering technical insitutes completing academic Associate degrees	0.2	2.0	1.7
Students entering technical insitutes completing vocational Associate degrees	17.9	15.3	14.7
Students entering technical insitutes completing certificats	18.0	15.2	15.2
Students entering private vocational schools students completing academic Associate degrees	1.1	0.0	0.0
Students entering private vocational schools completing vocational Associate degrees	11.4	10.0	9.9

TABLE 1
SUMMARY RESULTS: TRANSFERS RATES TO FOUR-YEAR COLLEGES AND B.A. COMPLETION RATES AMONG TRANSFER STUDENTS

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 years)
Students entering private vocational schools completing certificates	23.6	28.5	27.0
Academic Associate degree recipients transferring	48.9	68.7	65.4
Vocational Associate degree recipients transferring	23.2	31.7	28.7
Certificate recipients transferring	6.7	13.7	12.5
Proportion of transfer students completing B.A.s			
Students transferring without credentials	9.7	16.5	38.3
Students transferring with academic Associates degrees	12.1	60.7	59.4
Students transferring with vocational Associates degrees	20.0	54.7	52.3
Students transferring with certificates	low n	23.7	23.4
Proportion of students entering 4-year colleges completing B.A.'s	27.2	30.8	43.8

low n = not available because of small sample size

where pr(cert) is the probability of earning a certificate and pr(T | cert) is the conditional probability of transferring among those who have earned certificates, for example. Calculating these different probabilities for students entering community colleges — the non-B.A. institutions which are most likely to generate transfer students — yields the results in Table 2. Most of the decline in the overall probability of transfer — from 28.7 percent of students entering community colleges in the Class of 1972, to 20.2 percent of such students in the Class of 1980 — came from the decline in the proportion of those transferring without a credential, and from a decline in the tendency to earn an academic Associate degree and then transfer.

One implication of these trends is that transferring without completing a credential has become relatively more important. In the Class of 1972, 64 percent of transfer students (=.183/.287) did so without a credential; but in the Class of 1980, 73 percent of transfer students took this route. In contrast, completing the academic Associate degree — responsible for 25 percent of transfers in the Class of 1972 — accounted for only 14 percent of transfers in the Class of 1980. Finally, in the Class of 1980, community college transfer students were almost as likely to have completed a vocational Associate degree as an academic Associate degree, confirming the claim of some postsecondary vocational educators that their programs are significant routes to transfer.

These results also confirm that the rise of vocational programs in the community colleges relative to academic programs is responsible for some part of the decline of transfer, since vocational students and those completing vocational Associate degrees are less likely to transfer than academic students.The shift toward more vocational programs has been one of the dominant explanations of declining transfer, as well as evidence for those who have attacked the community college for restricting opportunity [1]. However, this shift explains only a small amount of the decline in transfer rates — roughly 15 percent of the overall decline.[7] In addition, as long as vocational enrollments in community colleges are freely chosen by students, rather than coerced by enrollment limitations or biased counselors, then it is inappropriate to blame the colleges themselves for this component of the decline of transfer.[8]

Instead of blaming declining transfer on the rise of vocational programs, a more powerful explanation is the decline of transfer among academic students, and the weakening of the academic Associate degree as a route to four-year colleges. In fact, this trend accounts for half of the the overall decline in transfer. In the Class of 1972, 68.7 percent of students completing academic A.A. degrees transferred to four-year colleges; and of these students who transferred, 60.7 percent completed a B.A. within four years of graduation from high school. Therefore completion of an academic A.A. degree gave a student a realistic expectation of completing a B.A. since 41.6 percent (=.687 x .607) of these completers earned B.A.'s within four years of leaving high school. For the Class of 1980, however, many fewer students completing academic Associate degrees

TABLE 2
DECOMPOSITION OF THE PROBABILITY OF TRANSFERRING AMONG STUDENTS ENTERING COMMUNITY COLLEGES

	Class of 1980 (within 4 years)	Class of 1972 (within 4 years)	Class of 1972 (within 7 years)
pr(T w/o cred) +	14.7%	18.3%	15.9%
pr(cert) • pr(T|cert) +	0.1	0.3	0.3
pr(voc AA) • pr(T|voc AA) +	2.6	3.0	2.9
pr(ac|AA) • pr(T|ac AA) =	2.8	7.1	6.8
pr(T)	20.2	28.7	25.9

transferred (48.9 percent) and very few of these (12.1 percent) earned a B.A. within four years, so only 5.9 percent of students completing an academic A.A. could expect a B.A. degree within four years. This was close to the fraction of students with vocational A.A. degrees who transferred and received a B.A. — 4.6 percent. Thus the shift away from the academic A.A. in favor of vocational credentials may explain some of the decline in the transfer function; but even those who obtain an academic Associate degree can no longer count on that credential being a likely path to a B.A. degree.

It is possible to object to these results because they include all students — including those "experimenters" who enter community colleges just to see whether postsecondary education suits them or not, vocational students who enter for a short program or certificate, and those who enter without any aspirations to continue to four-year colleges. Rates of transfer can be calculated excluding such students, to see whether the declines in transfer rates in Table 2 are explained by increases in such students. First, I exclude those students who might plausibly be considered "experimenters", who leave after a short period of time. Somewhat arbitrarily, I defined experimenters as those who leave with twelve credits or less;[9] the fraction of students entering community colleges who left with twelve credits or less increased, from 10.5 percent in the class of 1972 to 18.3 percent in the Class of 1980. Excluding these students yields the overall transfer rates in row 2 of Table 3: these are somewhat higher, and the decline in the transfer rate is somewhat smaller (7.4 percentage points instead of 8.5 percentage points), but a decline is still evident. Similar, we can calculate transfer rates for academic students only, on the assumption that they are most likely candidates for transfer. In this case, academic students are defined as those with more than half their credits in academic subjects during their first semester, excluding those entering for obviously vocational programs. These rates, in row 3, are higher still, but a decline between the two cohorts is still evident; and excluding "experimenters" among these academic students doesn't change the pattern markedly. Finally, including only those students entering community college who aspired during their last year in high school to a B.A. or graduate degree yields the highest transfer rates — 33.9 percent in the class of 1980 and 46.0 percent in the Class of 1972 — but a decline is still present. Excluding "experimenters", in the last row of Table 3, indicates that students who enter community colleges with aspirations to transfer, and who do not drop out after relatively little coursework, have reasonable chances of continuing to a four-year college, since two-fifths of those in the Class of 1980 did so. But even for this group, there has been a substantial decline in the probability of transferring.

II. Transfer Rates for Different Groups of Students

TABLE 3
TRANSFER RATES AMONG STUDENTS ENTERING COMMUNITY COLLEGES UNDER ALTERNATIVE ASSUMPTIONS

	Class of 1980 (with 4 years)	Class of 1972 (with 4 years)
All students	20.2%	28.7%
All students excluding "experimenters" (under 12 credits)	24.7	32.1
Academic students only	27.5	37.6
Academic students only excluding "experimenters"	33.7	41.5
Students aspiring to B.A. degrees	33.9	46.0
Students aspiring to B.A. degrees excluding "experimenters"	39.8	49.7

Of course, it is possible that the declines in transfer rates among students entering community colleges, technical institutes, and private vocational schools are due to changes in the composition of students. From the NLS72 and the HS&B data, as displayed in Table 4, it is clear that students enrolling in these institutions were increasingly female rather than male, increasingly black and Hispanic, were drawn less frequently from groups of high socio-economic status and high ability measured in high school,[10] came less often from the academic track in high school and more often from the general and vocational tracks. However, aspirations for earning B.A. and graduate degrees did not fall, except perhaps for students entering technical institutes; indeed, the proportion of students entering community colleges, technical institutes, and private vocational schools with aspirations for graduate degrees increased between the class of 1972 and the class of 1980.

The simplest way to examine whether the changing composition of students explains declining transfer is simply to recalculate transfer rates for different groups of students. (These results, like those in Table 2, concentrate on students entering community colleges, since those entering technical institutes and private vocational schools are so unlikely to transfer.) The results, presented in Table 5, reveal some disappointing but unsurprising findings: transfer rates are higher for males, for white students compared to blacks and Hispanics, for students of high socio-economic status, for those of higher ability measured during high school, and for those who were in the academic track rather than the general or vocational tracks during high school. As has already been confirmed, those with higher educational aspirations were substantially more likely to transfer. However, the major conclusion from these results is that transfer rates decreased for every group, even those most likely to transfer. To be sure, some groups experienced relatively greater declines than others: women, black and Hispanic students, and those with lower aspirations were more likely to experience large declines in transfer rates. These results are consistent with conventional patterns of progress through education, where minority students and those of low socio-economic status and ability are less likely to progress.

Furthermore, each of the components of transfer fell for almost every group of students, as the results in Appendix tables A-1 to A-5 indicate. For example, from Table A-1, the likelihood of transferring without a credential — the single most important source of transfers, according to the results in Table 2 — fell among virtually every group of students, including those with aspirations for B.A. and graduate degrees; only for high ability students were these transfer rates constant. For this component, the decrease in transfer rates was greater for women, for blacks and Hispanics, for those of lower socio-economic status and of lower ability measured in high school, and those from the general and vocational tracks. Somewhat surprisingly, the decline in transfer was not any larger (in relative terms) among vocational students than among academic students, though of

TABLE 4
COMPOSITION OF STUDENTS ENTERING POSTSECONDARY EDUCATION

	Students in Community Colleges		Students in Technical Institutes		Students in Private Voc. Schools		Students in Four-Year Colleges	
	Class of 1972	Class of 1980	Class of 1972	Class of 1980	Class of 1972	Class of 1980	Class of 1972	Class of 1980
Men	53.1%	47.3%	55.7	52.5	36.8%	27.3%	53.7%	48.8%
Women	46.9	52.7	44.3	47.5	63.2	72.7	46.3	51.2
White	85.7	80.0	87.7	82.5	83.8	80.0	88.2	83.6
Black	6.8	9.6	9.0	10.6	12.1	13.1	8.0	10.7
Hispanic	4.9	7.5	2.4	4.9	1.3	5.8	2.0	3.3
Other	2.6	2.9	0.9	2.0	2.7	1.1	1.8	2.4
Low SES	18.1	19.8	31.5	28.2	22.4	25.9	12.9	13.3
Middle SES	54.5	55.0	49.5	56.6	60.6	59.1	41.9	43.7
High SES	29.5	25.2	19.0	15.2	17.1	15.0	45.2	43.0
Low Ability	19.2	20.6	26.0	25.9	19.0	28.7	6.6	7.1
Middle Ability	56.0	58.4	57.5	62.5	64.3	57.0	38.4	44.5
High Ability	24.8	21.0	16.5	11.6	16.7	14.3	55.0	48.4
Academic Track	42.1	34.2	23.0	22.0	38.4	26.0	73.4	68.9
Vocational Track	19.8	25.0	48.2	41.2	33.3	45.9	6.1	7.8
General Track	38.1	40.8	28.8	36.8	28.3	28.1	20.5	23.3
Aspirations:								
High school only	9.3	7.0	12.9	12.2	10.5	14.2	2.6	1.4
Voc. program	16.9	18.2	57.2	56.2	60.3	48.4	4.5	3.7
Sub-B.A. degree	32.0	28.8	14.3	18.9	8.7	6.4	5.1	8.3
B.A.	30.7	28.7	14.3	18.9	16.3	17.8	62.2	44.2
Postgraduate	11.0	17.2	3.1	3.3	4.1	13.2	25.6	42.5

TABLE 5
PROPORTION OF STUDENTS ENTERING COMMUNITY COLLEGES AND TRANSFERRING

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	20.2%	28.7%	25.9%
Male	24.6	30.6	28.1
Female	16.5	26.2	23.6
White	21.7	28.7	26.0
Black	10.2	27.1	25.2
Hispanic	15.7	25.9	22.4
Low SES	12.6	20.6	17.7
Middle SES	19.2	26.5	23.9
High SES	28.0	38.2	35.9
Low Ability	9.3	15.7	13.5
Middle Ability	23.6	28.6	26.0
High Ability	33.9	41.5	37.1
Academic track	31.5	39.5	36.8
General track	18.6	23.9	21.9
Vocational track	9.3	13.7	11.5
Aspirations: No PSE	6.7	15.4	12.3
Vocational/technical	6.8	8.9	8.4
Academic, < 4 years	10.3	19.9	19.2
BA	32.5	43.6	40.9
Advanced degree	37.0	52.9	50.7

course academic students are more likely than vocational students to transfer.[11] However, for other routes to transfer — completing academic and vocational Associate degrees and then transferring, described in Tables A-2 to A-5 — there seems to be no tendency for declines in transfer to be greater for minority students, or those of lower socio-economic status or ability, or those with lower aspirations.

I conclude, then, that the declines in transfer rates were widespread among all groups of students, and therefore the modest changes in student composition described in Table 4 cannot explain the overall decline in rates of transferring from community colleges to four-year colleges. They do, however, explain a small fraction of the decrease; for example, overall transfer rates would have been about 0.5 percentage points higher (that is, 20.7 percent instead of 20.2 percent) if the gender composition of students entering community college had not changed, 0.5 percentage points higher if the racial composition had remained constant, 0.9 percentage points higher if there had been no shift in the socio-economic background of students, 0.6 percentage points higher if abilities had not changed, and 1.3 percentage points higher if students entering community colleges had not tended to come increasingly from general and vocational tracks (which by itself explains 15 percent of the decline in transfer rates). Based on these modest differences, perhaps one quarter to one third of the overall decline in the transfer rate could have been due to shifts in the composition of students entering community colleges.[12]

III. The Tendency to Complete B.A. Degrees Among Transfer Students

A somewhat separate issue is what happens to students who do transfer. Much of the previous research on this has been preoccupied with whether transfer students perform as well, as measured by grade point average, as "native" students who began in four-year colleges [18]. The results show considerable variation across different institutions and across states with different practices. In general, the issue of B.A. completion is given much less attention than intermediate issues like grades, and none of this prior work asks whether there have been trends in the experiences of transfer students.

Given both the symbolic and the real importance of the transfer function to community colleges, the most important question about the performance of transfer students is whether they manage to complete B.A. degrees. The last four rows in Table 1 describe the proportion of transfer students who complete B.A. degrees, within the four or seven years of observation. They indicate that rates of completing baccalaureate degrees among transfer students declined precipitously between the Class of 1972 and the class of 1980, since the likelihood of receiving a B.A. fell for

those transferring without a credential, for those entering with Academic Associate degrees, and for those entering with vocational Associate degrees. The declines were especially sharp for the two latter groups; and for those transferring after receiving academic Associate degrees, the proportion receiving a B.A. fell from 60.7 percent to 12.1 percent, below the 20 percent of those transferring with vocational Associate degrees.

In addition, these results indicate that students who transferred without an Associate degree were less likely than those with either a vocational or an academic Associate degree to complete a B.A. — no doubt because those without an Associate degree were likely to have more credits to earn, requiring a longer period of time which contributed to the likelihood of dropping out. Given this finding, the conclusion in Section I that transferring without a credential has become increasingly important is distressing, because this is the group least likely to complete B.A. degrees within a given period of time.

Finally, the propensity to complete a B.A. degree can be calculated separately for different groups of students. Appendix Tables A-6, A-7, A-8, and A-9 (a summary table giving the proportion of students entering community colleges completing B.A. degrees) present the results for students by gender, race and ethnicity, socio-economic status, ability, high school track, and educational aspirations. Just as the propensity to transfer has declined for all groups of students, so too the likelihood of receiving a B.A. among those students who succeed in transferring has declined for virtually every group (save possibly for low-ability students who transfer without completing a credential).

As a result of the decreased likelihood of transferring, and the decreased likelihood of students who transfer completing B.A. degrees, the receipt of B.A. degree among students who entered community colleges and technical institutes fell during the 1970s. Table 6 presents information on the receipt of all types of credentials in the class of 1972 and the class of 1980. While vocational Associate degrees and certificates increased, especially among students entering technical institutes, the tendency to earn B.A. degrees and academic Associate degrees fell. The most important component of this decline came in the reduced fraction of students transferring with academic A.A. degrees who then completed B.A.'s, since the likelihood of completing such degrees fell and the proportion of academic Associate degree holders fell dramatically. This suggests again that the most serious problem within community colleges has come not in the shift to vocational programs, but rather in the weakening of academic Associate degree programs as routes to the baccalaureate.

To be sure, these figures may be inappropriate tests of the ability of transfer students to complete B.A. degrees, since they measure the likelihood of receiving a baccalaureate within four years of leaving high school. If students are now taking longer to complete credentials, then it is possible that over longer periods of time the rates of completing B.A.'s among transfer students

TABLE 6
PROPORTION OF STUDENTS COMPLETING CREDENTIALS

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 years)
Students entering community colleges:			
Completed B.A.	3.6%	7.4%	16.9%
Completed Academic Associate	5.7	7.5	5.3
Completed Vocational Associate	10.8	8.5	9.2
Completed Certificates	2.7	2.3	2.8
Students entering technical insitutes			
Completed B.A.	0.9	1.2	3.7
Completed Academic Associate	0.9	2.3	2.5
Completed Vocational Associate	17.8	13.6	15.8
Completed Certificates	19.8	13.6	16.4

TABLE 7
PROPORTION OF B.A. RECIPIENTS INITIALLY ENROLLING IN COMMUNITY COLLEGES AND TECHNICAL INSTITUTES

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	6.6%	9.2%	14.1%
Male	8.1	8.9	15.2
Female	5.3	9.5	12.8
White	6.7	9.4	13.9
Black	4.7	6.7	11.8
Hispanic	5.9	0	20.9
Low SES	10.0	9.0	15.7
Middle SES	8.5	12.5	17.6
High SES	4.3	6.6	10.8
Low Ability	12.8	29.4	24.4
Middle Ability	6.1	13.5	20.6
High Ability	6.9	5.8	9.5
Academic track	5.4	7.8	11.5
General track	12.0	15.9	23.2
Vocational track	0	21.9	33.2
Aspirations: No PSE	0	46.8	26.1
Vocational/technical	0	23.8	38.9
Academic, < 4 years	5.4	57.7	65.6
B.A.	8.3	7.8	12.0
Advanced degree	3.8	7.1	9.8
High ability, low SES	9.2	5.4	10.4
High ability, middle SES	9.7	8.9	14.9
High ability, white	10.5	5.9	8.9
High ability, Black	6.3	low n	low n
High ability, Hispanic	20.9	low n	low n

would remain constant. While there is no existing data set that could confirm or refute this claim, some evidence suggests that this is an unlikely explanation of the declining rate of B.A. completion among transfer students. Comparing the second and third columns of Table 1, it is clear that the likelihood of completing a B.A. degree among transfer students increases with longer periods of observation only for those students transferring without a credential, who need to complete more coursework than those entering with an Associate degree. However, for students entering with a credential, longer periods of observation do not increase B.A. completion rates. In addition, the decline in the rate of completing a B.A. within four years among students entering four-year colleges — presented in the last row of Table 1 — was relatively modest, from 30.8 percent to 27.2 percent, compared to the much larger declines among transfer students. It seem unlikely, therefore, that B.A. completion over periods longer than four years could compensate for these large declines between these two cohorts. Indeed, it seems more likely that, if there is a tendency toward a longer period of time to complete a B.A.for more recent cohorts, this will itself cause more students originating in community colleges not to complete their B.A.'s as financial hardships, the attractiveness of employment, family responsibilities, or sheer weariness over longer periods of time make dropping out more likely.

However, this analysis of B.A. completion may be the wrong way to view the contribution of the community college. A different way to measure its contribution is to ask what fraction of B.A. recipients began their education in community colleges. In a period of time in which initial enrollments in two-year institutions were increasing relative to enrollments in four-year colleges, it is possible that this fraction has been increasing, despite the declining rate of B.A. completion as described in Tables 6 and A-9. Table 7 presents information on the proportion of B.A. recipients who began in community colleges or technical institutes.[13] The comparison between the two cohorts within four years of leaving high school clarify that this proportion has decreased overall, and has decreased for most groups of students. However, for certain groups of students, the proportion of B.A. recipients starting in community colleges has increased — for low SES students; for students of high ability levels; for students aspiring to B.A. degrees; and for low- and middle-SES students of high ability, students who ordinarily might have limited access to four-year colleges. In addition, the fraction of B.A. recipients starting in community colleges is especially high (20.9 percent) among high ability Hispanics. These results suggest that community colleges have been a relatively more important route to the B.A. degree for students of relatively high abilities and aspirations from lower income and class backgrounds, consistent with their image of being a alternative route for students who are "college material" but whose resources and family circumstances keep them out of four-year colleges. Conversely, the sharp declines in the proportion of B.A. recipients starting in communities colleges among students from vocational tracks and those with lower aspirations suggest that community colleges are increasingly terminal

institutions for those students who enter with limited aspirations — while for earlier cohorts the community college may have served to lift the aspirations of those who entered without much thought of ever attending a four-year college.

Of course, over longer periods of time — over the seven years of data available for the NLS72 sample — the proportion of B.A. recipients starting in community colleges increases, because these students take longer than those starting in four-year colleges to complete their degrees. Overall, then, perhaps ten to twelve percent of B.A. recipients in the high school class of 1980 will have started in community colleges[14] — a fraction which is declining but still important, particularly for some groups of students with limited access to four-year colleges.

IV. "Death by a Thousand Cuts": The Causes of the Decline of Transfer

It is possible that the trends in transfer patterns described in this paper have already begun to improve. While the most recent data sets analyzed here covers the 1980-84 period, there are some indications that transfers have improved since the early 1980s [18]. During the 1980s communities colleges abandoned the *laissez faire* practices which prevailed during the 1970s, and began instituting student tracking and information systems, requirements related to minimum progress, improved counseling, transfer centers, articulation agreements with four-year colleges, and other mechanisms which might be expected to improve transfer [23]. However, the declines during the 1970s were in some cases quite sharp, and most of the causes of declining transfer are still present, so the problem remains a serious one.

Another possibility is that all postsecondary students have slowed their rate of progress through higher education, but that ultimately — over periods of time longer than the four years analyzed in this paper — rates of transfer and of completing B.A. degrees will prove not to be any lower. Although there is no evidence available from any source to reject this claim, the decreases in transfer rates in Tables 1 and 2 are so large that this hypothesis seems implausible. In addition, the NLS72 data indicate that most components of transfer rates decrease rather than increase over longer periods of time.

We can also reject the hypothesis that the apparent trends in transfer rates are simply cyclical effects or the results of transitory labor market conditions. For example, unemployment rates were generally higher in the early 1980s than they were in the mid-1970s when the Class of 1972 was enrolled in higher education. Higher unemployment rates reduce the opportunity costs associated with schooling, and might therefore increase continued enrollment and transfer. However, higher unemployment might also decrease transfer by reducing the financial resources

available from employment for continuing college attendance. Thus shifts in unemployment rates have contradictory effects and do not explain in any obvious way the decrease in transfer rates. Another potential transitory influence involves the economic returns to higher education. However, these returns fell during the 1970s for four-year college relative to high school [6; 7], but have since increased [22]; an increase since the 1970s should have increased the incentive for transferring and completing B.A. degrees.

The results in this paper suggest that the problem of declining transfer rates has been one of "death by a thousand cuts", rather than a single mortal blow; a large number of causes explain the decline, rather than any one single explanation. The results in Section I clarify that the rise of vocational programs in community colleges relative to academic programs is responsible for some part of the decline, but explains only a small proportion — perhaps 15 percent. A somewhat more important explanation is the apparent weakening of the academic Associate degree as a route to four-year colleges. That is turn may reflect the coherence of offerings in many community colleges, which have failed to offer many of the sophomore-level courses necessary for transfer because of declining enrollments [23]; but it may equally reflect the inability of many students to make adequate progress through community colleges. This problem also helps explain the decreasing proportion of community college students who accumulate enough credits of the right type to transfer without first receiving an Associate degree, which by itself accounts for about two fifths of the declining transfer rate from community colleges. This phenomenon is related to a more general problem in community colleges — the problem of "milling around", describing postsecondary students who fail to put together a substantial and coherent program of courses and who leave without accumulating enough credits to be of much value for either transfer or employment [11]. "Milling around" is the dark side of the increasing flexibility that came to colleges in the 1970s. Nontraditional patterns of attendance — including late entry, part-time enrollment, combining employment with schooling, and stopping out for periods of time — gave students more choices about how to complete a postsecondary program; but by weakening the "lock-step" progression through postsecondary education it made non-completion more likely.

Still another explanation of decreasing transfer rates is the apparent increase in students entering community college who might be considered "experimenters" — who enter to see whether college is suited to them, but who leave within a short period of time. In the Class of 1980, 8.6 percent of students entering community colleges dropped out with six or fewer credits, and 18.3 percent left with twelve credits or less, compared to 4.0 percent and 10.5 percent respectively for the class of 1972. While it is difficult to know why the numbers of "experimenters" should have increased, my own experiences in high schools and discussions with counselors suggests that the career counseling function at the high school level has all but vanished, and many more students leave high school with no idea whatsoever about what they want to do — a more serious problem

for students entering community colleges than those in four-year colleges, who have longer to figure out what they might do and a more rigid structure of progression through college. In addition, it seems plausible that increases in students unsure of their educational and occupational goals hit community colleges just at the period of time when *laissez faire* policies, placing the greatest burdens on students for their educational programs, were at their zenith. However, as with the shift to more vocational courses, the trend in "experimenters" accounts for only a small fraction of the decreased transfer rates.

Yet another partial explanation is the changing composition of students in community colleges. The increases in women relative to men, in minority students, in students of lower-socio-economic status, in students with lower achievement levels as measured in high school and who were enrolled in vocational and general tracks have meant that community colleges have more students who have difficulty progressing through education. These students tend to accumulate fewer credits, are less likely to transfer without completing credentials, and are less likely to complete Associate degrees; if they do complete such degrees, they are less likely to transfer. However, the changes in the composition of students entering community colleges directly after high school have been relatively modest, and transfer rates have declined for almost every group of students; the finding that transfer rates have decreased even for men, while students, those of the highest socio-economic status, and those of high ability[15] suggests that a more pervasive problem exists. Thus the demographic shifts in community colleges cannot possibly account for more than one quarter to one third of the fall in transfer rates.

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postsecondary education of the Class of 1980 less than they affected persistence after 1981. In contrast, student aid was increasing during the 1972-1976 period when the class of 1972 was moving into higher education [8]. Thus financial aid patterns should have helped to increase persistence for the Class of 1972 — and by extension transfer rates from two- to four-year colleges — while it could only have decreased persistence and transfer for the Class of 1980. Declining student loans and grants after 1981 might be particularly damaging to transfer rates because many low-income students can attend two-year institutions without aid because costs are low and they can work while they attend school, but they are more likely to require such aid if they go to a four-year college.

I conclude, therefore, that the declining transfer rates documented in this paper are due to many small influences, among them the changing demographic backgrounds of students, declining achievement during high school, a collapse of career counseling in the high school and an increase in the numbers of "experimenters" in community colleges, the shift from academic to vocational programs within community colleges, the apparent weakening of academic Associate degree programs as routes to transfer, an increase in "milling around" in all of postsecondary education,

and declining federal aid. However, many recent innovations designed to enhance transfer rates, like articulation agreements and coordination mechanisms between two- and four-year colleges, assume that the process of transfer into the four-year college is itself burdensome and discourages many potential students [17; 25; 5]. This process may in fact be a barrier, but it does not explain in any obvious way why transfer rates have deteriorated unless this process itself became more unwieldy during the 1970s and early 1980s. Conversely, the fact that there are many other possible explanations for declining transfer rates indicates that these innovations may be helpful but still fail to address the problems caused by poor high school preparation, the lack of financial aid, the need for careful assessment and educational planning to reduce the tendency to "mill around", or the failure to offer the courses necessary for transfer within the community college. If decreasing transfer rates are examples of "death by a thousand cuts", due to a thousand small causes, then transfer rates are indicators of the health of the entire educational system, not just the community colleges — and it will be important to make progress against each of the causes if the decline of transfer rates is to be reversed.

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Footnotes

[1] These results are drawn from the National Postsecondary Student Aid Survey (NPSAS), based on a national probability sample of all students enrolled in higher education in fall 1986. This is the most recent and the most comprehensive survey of students in higher education available. It has the advantage over the longitudinal surveys used in this paper of including all students in higher education, not just a young cohort; but it is a simple cross section of students and cannot be used to analyze rates of completion, transfer, or other phenomena that require longitudinal data.

[2] Over the longer period of time, individuals still in school at the end of four years may complete their education or drop out; some of those who dropped out within four years may re-enter; and a very few students will enter postsecondary education for the first time. In interpreting results from longitudinal studies, it is important to remember that there are always some students still in school at the end of the period of observation. In transfer rates, for example, they enter the denominator but not the numerator.

[3] Another aspect of transfer is the phenomenon of "reverse transfer", or students transferring from four- to two-year institutions — which some community college administrators have claimed are increasing. However, in the longitudinal data used in this paper, there is no evidence of any increase in the rate of reverse transfers. In the Class of 1972, 9.6 percent of students entering four-year colleges transferred to two-year institutions (community colleges and public technical institutes) within four years after leaving high school; this proportion was virtually the same — 9.1 percent — for the Class of 1980. Furthermore, with enrollments in two-year institutions increasing more rapidly during this period than enrollments in four-year colleges, the numbers of such reverse transfers relative to the community college population must have been declining rather than increasing. Of course, large numbers of reverse transfers come from older students, who are not included in these longitudinal data sets.

[4] In these data there are not enough students in private junior colleges to analyze separately, so such students are not included.

[5] Most of these results are taken from Grubb (1989b), Appendix B. For the technical details of these calculations, see Appendix A of this report. It is important to note that NLS72 and HS&B are samples of individuals, and therefore all parameter estimates are subject to sampling variation. Because both data sets were generated with two-stage sampling procedures, the samples are not simple random samples; therefore parameter variances calculated with conventional formulas tend to understate true parameter variances. In the calculations underlying these results, variances were estimated with a Taylor series method. Parameter variances are not reported here, but only statistically significant differences are reported in the text.

[6] The apparent increase in the proportion of private vocational school students earning an academic Associate degree is both trivial and statistically insignificant.

[7] From Table 2 the route to transfer via a vocational Associate degree accounted for a 0.4 percentage point decline (from 3.0 percent in the Class of 1972 to 2.6 percent in the Class of 1980) out of a total decline of 8.5 percentage points. In addition, from rows 2 and 3 of Table A-1, it is clear that vocational students were only half as likely to transfer without credentials as academic students; but the shift toward greater numbers of vocational students — from 55 percent of community college entrants in the Class of 1972 to 62 percent of entrants in the Class of 1980 — accounted for a decline of only 0.9 percentage points out of the 3.6 percentage point decline among

those transferring without a credential. In total, then, the increase in vocational students accounted for about 1.3 percentage points of a total decline of 8.5 percentage points.

[8] This is not the place to debate whether student choices are free or coerced. For the argument that the shift towards vocational courses has been forced upon students, see Brint and Karabel (1989). The contrary argument would note that community colleges are still overwhelmingly dominated by teachers and administrators from academic areas and that the mechanisms of possible coercion (like counseling and admissions prerequisites) are weak in most colleges.

[9] The patterns in Table 3 remain the same when the cutoff defining experimenters is either 6 or 18 credits. A complex algoithm has been used to standardize credits among institutions; see Grubb (1989b).

[10] In these results, socio-economic status is measured by a weighted sum of responses about parental education, father's occupation, family income, and the presence in the home of various consumer goods. Ability is measured by achievement tests. "High" and "low" refer to the top and the bottom quartiles respectively.

[11] In these results, vocational students are those for whom more than 50 percent of their first semester's coursework was vocational, and academic students have more than half their initial courses in academic subjects. This definition leads to some inevitable misclassifications, but none other was possible.

[12] These estimates are calculated by applying the transfer rates of the Class of 1980 to the composition of community college students from the class of 1972. Because transfer rates in this paper are calculated separately for each of these groups independently, it is impossible to estimate what the overall transfer rate would have been if all changes in student composition had not taken place; this would require estimating a logit or probit equation explaining transfer for the class of 1980, and then substituting the composition of the Class of 1972 into the resulting equation. Such an analysis would also consider a much wider range of variables than that considered here. Because the different changes in composition are obviously correlated — e.g., the increase in minority students automatically means an increase in students of lower SES — the estimates presented here cannot be simply added.

[13] Technical institutes are included here simply to present results for all non-B.A. institutions. However, their contribution to B.A completion is trivial: for the Class of 1980 only 0.3 percent of B.A. recipients started in technical institutes; comparable figures for the Class of 1972 were 0.2 percent within four years and 0.5 percent within seven years.

[14] Between four and seven years after high school, the fraction of B.A. recipients starting in community colleges increases by 53 percent (=14.1/9.2), based on the NLS72 figures, so the 6.6 percent figure for the Class of 1972 should increase to 10.1 percent. Over periods of time longer than seven years, this fraction should continue to increase, but more slowly.

[15] In addition, in results in Appendix B of Grubb (1989b), transfer rates decreased even among students earning high grades. Of course, if high school standards have decreased uniformly, then high-achieving students in the Class of 1980 were not as well-prepared as high-achieving students in the Class of 1972, so this hypothesis cannot be effectively refuted without an exogenous measure of ability or achievement.

16 The most thorough analysis of transfer rates would estimate logit or probit equations describing the probability of transfer as a function of independent variables describing student background, high school and college performance, financial aid, local labor market conditions, and the like, for both cohorts; then it would be possible to decompose changes in transfer rates into changes in the values of independent variables and changes in the resulting parameters. While conceptually simple, such an approach was beyond the resources available for this research.

TABLE A-1
PROPORTION OF STUDENTS ENTERING COMMUNITY COLLEGES TRANSFERRING WITHOUT CREDENTIALS

	Class of 1980 (within 4yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	14.7%	18.3%	15.9%
Academic	21.7	25.9	23.1
Vocational	10.4	12.1	10.2
Male	18.2	19.6	17.4
Female	11.5	16.7	14.2
White	15.7	17.7	15.4
Black	8.9	21.6	19.0
Hispanic	8.0	19.5	16.6
Low SES	8.5	14.6	12.3
Middle SES	13.7	15.9	13.6
High SES	22.1	25.8	23.4
Low Ability	6.7	11.7	9.8
Middle Ability	17.5	18.2	15.7
High Ability	25.1	24.9	21.8
Academic track	23.3	23.8	21.2
General track	12.5	16.6	14.6
Vocational track	6.7	9.5	7.7
Aspirations: No PSE	5.4	14.8	10.5
Vocational/technical	3.9	6.5	5.3
Academic, < 4 years	6.0	10.6	9.5
B.A.	24.2	27.4	24.9
Advanced degree	29.4	36.4	33.9

TABLE A-2
PROPORTION OF STUDENTS ENTERING COMMUNITY COLLEGES COMPLETING ACADEMIC ASSOCIATE DEGREES

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	5.7	10.4	10.4
Male	5.3	10.9	11.2
Female	6.0	9.7	9.5
White	5.6	11.2	11.1
Black	3.1	3.3	5.2
Hispanic	8.2	4.6	4.8
Low SES	5.0	5.9	5.7
Middle SES	5.5	11.4	11.2
High SES	6.3	11.2	12.2
Low Ability	3.7	2.8	3.1
Middle Ability	5.8	11.1	11.0
High Ability	9.2	17.0	17.3
Academic track	8.0	15.5	16.2
General track	6.4	8.4	8.3
Vocational track	1.2	2.6	2.8
Aspirations: No PSE	0.9	2.8	2.1
Vocational/technical	3.3	1.5	2.3
Academic, < 4 years	2.5	8.8	9.3
B.A.	9.2	16.4	16.8
Advanced degree	9.4	17.9	19.9

TABLE A-3
PROPORTION OF ACADEMIC A.A. RECIPIENTS TRANSFERRING

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	48.9%	68.7%	65.4%
Male	58.0	71.2	68.2
Female	43.5	65.9	62.2
White	50.8	67.4	64.6
Black	25.8	low n	low n
Hispanic	58.9	low n	low n
Low SES	57.4	57.8	55.8
High SES	44.1	73.0	67.5
Low Ability	45.5	low n	47.2
Middle Ability	49.0	67.4	64.3
High Ability	70.9	71.8	67.9
Academic track	46.9	72.6	69.6
General track	63.3	62.2	59.2
Vocational track	24.5	48.2	49.0
Aspirations: No PSE	low n	low n	low n
Vocational/technical	low n	low n	low n
Academic, < 4 years	34.1	68.5	65.4
B.A.	61.5	73.8	71.5
Advanced degree	40.6	69.5	65.8

TABLE A-4
PROPORTION OF STUDENTS ENTERING COMMUNITY COLLEGES COMPLETING VOCATIONAL ASSOCIATE DEGREES

	Class of 1980 (within 4 years)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	11.4%	9.6%	10.4%
Male	10.2	8.9	9.0
Female	12.5	10.4	11.9
White	12.4	10.2	10.9
Black	4.4	5.6	6.3
Hispanic	10.9	9.8	9.8
Low SES	11.8	11.2	11.2
Middle SES	12.8	9.5	10.2
High SES	9.0	8.6	10.2
Low Ability	7.2	6.0	7.4
Middle Ability	11.1	9.5	10.7
High Ability	13.5	10.8	10.2
Academic track	14.0	11.5	12.5
General track	9.9	6.5	7.9
Vocational track	10.6	11.6	11.0
Aspirations: No PSE	4.8	0.8	2.6
Vocational/technical	9.8	8.1	9.1
Academic, < 4 years	19.1	14.5	15.3
B.A.	8.7	9.2	10.7
Advanced degree	8.3	6.6	6.7

TABLE A-5
PROPORTION OF VOCATIONAL ASSOCIATE DEGREE RECIPIENTS TRANSFERRING

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	23.2%	31.8%	28.7%
Male	30.3	36.3	32.0
Female	18.4	27.6	25.8
White	23.7	30.8	28.3
Black	11.7	54.1	41.5
Hispanic	26.3	31.8	26.29
Low SES	10.8	21.0	18.4
Middle SES	22.0	25.9	25.2
High SES	35.1	47.7	40.2
Low Ability	13.1	29.5	25.6
Middle Ability	24.7	28.5	28.4
High Ability	16.9	38.5	32.6
Academic track	28.0	35.7	32.0
General track	16.6	27.8	26.1
Vocational track	21.0	24.6	21.5
Aspirations: No PSE	17.7	23.2	13.6
Vocational/technical	9.7	20.0	16.3
Academic, < 4 years	18.3	21.9	23.1
BA	30.6	43.4	36.4
Advanced degree	44.2	60.8	51.7

TABLE A-6
PROPORTION OF TRANSFER STUDENTS WITHOUT CREDENTIALS WHO EARN B.A.'S

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	9.7%	16.5%	38.3%
Male	9.2	14.4	41.0
Female	10.3	19.3	34.5
White	10.6	17.4	40.7
Black	7.6	12.9	25.4
Hispanic	1.3	0.0	25.0
Low SES	22.1	15.6	35.4
Middle SES	9.2	13.7	34.7
High SES	5.5	20.0	43.4
Low Ability	0.0	12.3	25.6
Middle Ability	7.5	14.8	39.9
High Ability	15.4	18.5	41.2
Academic track	12.2	20.8	41.1
General track	9.4	11.1	35.7
Vocational track	0.0	9.4	31.3
Aspirations: No PSE	low n	8.0	9.9
Vocational/technical	low n	2.2	20.1
Academic, < 4 years	6.5	12.1	32.3
B.A.	10.8	15.7	44.8
Advanced degree	12.0	30.5	47.1

TABLE A-7
PROPORTION OF TRANSFER STUDENTS WITH ACADEMIC ASSOCIATE DEGREES WHO EARN B.A.'S

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	12.1%	60.7%	59.4%
Male	10.2	60.4	59.3
Female	13.6	61.0	59.4
White	11.6	62.0	61.1
Black	low n	low n	low n
Hispanic	7.3	low n	low n
Low SES	6.1	66.6	63.1
Middle SES	13.0	63.4	62.6
High SES	15.4	55.8	54.2
Low Ability	low n	low n	low n
Middle Ability	low n	64.8	60.9
High Ability	13.4	57.3	58.1
Academic track	16.3	62.2	61.2
General track	7.9	56.0	55.1
Vocational track	low n	low n	low n
Aspirations: No PSE	low n	low n	low n
Vocational/technical	low n	low n	low n
Academic, < 4 years	low n	75.0	73.0
B.A.	16.0	59.9	59.4
Advanced degree	15.5	53.6	51.3

TABLE A-8
PROPORTION OF TRANSFER STUDENTS WITH VOCATIONAL ASSOCIATE DEGREES WHO EARN B.A.'S

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	20.0%	54.7%	52.3%
Male	35.9	59.5	58.1
Female	2.0	48.7	46.0
White	22.1	54.4	52.0
Black	low n	low n	low n
Hispanic	low n	low n	low n
Low SES	low n	low n	57.4
Middle SES	low n	52.8	50.7
High SES	17.9	56.6	52.7
Low Ability	low n	low n	low n
Middle Ability	low n	55.4	49.8
High Ability	low n	54.9	54.1
Academic track	21.3	58.3	56.6
General track	42.1	52.6	45.5
Vocational track	low n	low n	42.9
Aspirations: No PSE	low n	low n	low n
Vocational/technical	low n	low n	low n
Academic, < 4 years	28.2	50.5	50.7
B.A.	24.5	58.9	53.1
Advanced degree	12.3	60.8	58.3

TABLE A-9
PROPORTION OF ALL STUDENTS ENTERING COMMUNITY COLLEGES WHO EARN B.A.'S

	Class of 1980 (within 4 yrs)	Class of 1972 (within 4 yrs)	Class of 1972 (within 7 yrs)
All Students	3.6%	7.4%	16.9%
Male	4.2	6.6	19.2
Female	3.1	8.3	14.4
White	4.2	8.2	17.9
Black	1.5	3.8	11.3
Hispanic	0.9	0	7.5
Low SES	2.4	3.9	10.2
Middle SES	3.7	7.3	15.5
High SES	4.7	9.8	25.8
Low Ability	0.8	2.7	5.8
Middle Ability	1.4	5.6	15.0
High Ability	6.7	12.0	27.6
Academic track	6.8	11.8	26.1
General track	3.0	4.6	12.1
Vocational track	0	2.3	6.0
Aspirations: No PSE	0	1.2	1.9
Vocational/technical	0	0.5	2.3
Academic, < 4 years	2.4	4.0	10.9
B.A.	7.0	12.7	31.9
Advanced degree	6.0	17.8	33.9

ERIC CLEARINGHOUSE FOR
JUNIOR COLLEGES
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